CHAPTER 7

ENVIRONMENTAL POLLUTION CONTROL

LEARNING OBJECTIVE: Identify the techniques used in the identification, prevention, and cleanup of water, ground, and air environmental pollutants, including the cleanup of oil spills and other hazardous materials.

ENVIRONMENTAL POLLUTION

The Navy's ability to accomplish its mission requires daily land, sea, and air operations. The Navy is committed to operating ships and shore facilities in a manner compatible with the environment. National defense and environmental protection are and must be compatible goals. Therefore, an important part of the Navy's mission is to prevent pollution, protect the environment, and conserve natural, historic, and cultural resources. To accomplish this mission element, everyone must be aware of the environmental and natural resource laws and regulations that have been established by federal, state, and local governments. The Navy chain of command must provide leadership and commitment to ensure that all Navy personnel develop and exhibit an environmental protection ethic.

This chapter will cover ways to prevent water, ground, and air pollution on the jobsite. It will also describe ways you can help prevent, control, and clean up pollution.

WATER AND GROUND POLLUTION

There are some wastes that should never be flushed into a sewer. Sewage treatment plants and industrial waste treatment plants are not designed to, nor can they, adequately treat all wastes. Some wastes such as those containing more than a trace of oil, cleaning fluids, gasoline or other volatiles, toxic chemicals, acids or alkalies, and some solid materials cannot be handled by sewers.

Besides creating a fire hazard, oil and other petroleum-related products pose many possible pollution threats when spilled in the water, dumped into the storm or sanitary sewer system, or spilled on the ground. Oil products on the ground infiltrate and contaminate surface water supplies with the groundwater runoff caused by rain. Oil products dumped or carried into storm or sanitary sewers are also potential explosion hazards.

Oily waste water from boiler rooms, banks of walk-in refrigeration units, and motor pool operations is caused by

- improper handling and storage of new and waste oil,
- equipment and vehicle washing operations, or
- various other maintenance activities that generate liquid waste or wastewater that must be stored or treated.

As a shop supervisor, one of your prime concerns should be to prevent oils used in the shop from draining into storm sewers and surface drainage systems. During pipe-threading operations, you should use catch pans and have absorbent materials available to soak up spilled oil. Spilled oil and fuels should **NEVER** be washed down a drain or sewer unless an immediate fire hazard exists and an oil-water separator is connected to the discharge line. Where minor spills are expected to occur occasionally (pipe threading, boiler burner cleaning, engine oil changes), sprinkle absorbent material on the spill, pick it up, and then place it in an Environmental Protection Agency- (EPA-) approved container. The EPA containers are normally disposed of through the Defense Reutilization and Marketing Office (DRMO). When this is not possible, the containers must be disposed of through a government-approved contractor or in a sanitary landfill approved by local government authorities.

Waste oils, filters, and contaminated fuel should be collected and disposed of in a nonpolluting manner. Most naval activities collect and dispose of waste oil periodically through a contractor. The contractor may burn it in a boiler plant or in a heating system or reprocess it in an oil reclamation plant. Naval supply fuel farms usually have the means to dispose of waste oils properly.

There will be times that you will see what could be a potential hazard, such as contaminated water running off the equipment on the washrack. It is your responsibility to check with the person in charge of the washrack to be sure this waste water is treated and not discharged into the storm system. Provisions must be made for pretreating or separating oil products and cleaning solvents used at the washrack.

Water Pollution

Pollution results from many activities, both mankind's and nature's. Water becomes polluted when wastes from activities flow into a lake or stream in such quantities that the natural ability of the water to cleanse itself is lessened or completely destroyed.

Wastes are dumped into our waters daily. The following list contains wastes and their sources:

- Sewage and other wastes come from cities and industries and from pleasure boats, commercial ships, and marinas.
- Nutrients (principally phosphates and nitrates) leach from sewage, industrial waste, and land runoff.
- Complex chemicals are found in household detergents, pesticides, herbicides, and wastes from industrial processes.
- Oil comes from ships ashore, offshore drilling rigs, and shoreline industrial facilities.
- Crankcase oils are improperly disposed of by auto service stations and home auto mechanics.
- Silt, sand, and debris come from city streets, urban construction, highway construction, farm surface erosion, and dredging from channel clearings.
- Salts flow from winter streets, field irrigation, and industrial processes.
- Heater water from power projects, industrial processes, and reservoir impoundments find their way into our waters.
- Disease-causing bacteria comes mainly from municipal sewage.
- Radioactive wastes come from a variety of sources. These sources include the mining and processing of radioactive ores, materials used in power plants, industrial, medical, and other research, and fallout during nuclear weapons testing.
- Mercury and other heavy metals frequently escape from industrial plants.
- Drainage waste comes from animal feedlots and meat processing plants.

These wastes have placed a serious strain on our waste treatment systems, as well as on our waterways. Some types of waste are difficult to remove. Other types respond to conventional treatment, but there are not enough treatment facilities to keep them out of our waters. Solving the pollution problem is not easy, but it must be solved if we are to have an adequate supply of safe, clean water for future use.

OIL SPILLS ON WATER.— An oil slick on the surface of the water blocks the flow of oxygen from the atmosphere into the water. This is harmful to fish and other aquatic life. If the fish do not die from the oil coating on their gills or from eating the oil or oil-laden food, their flesh is tainted and they are no longer fit for human consumption. Besides harming aquatic life, drinking water can become contaminated by oil. Drinking water from wells and surface storage facilities is treated with chemicals to rid the water of harmful bacteria. However, **no amount of treatment can rid a system of contamination from waste oil products.** The system must be abandoned.

Booming of spills has proved to be effective in containing spills of liquids on relatively calm and current-free waters. Because of ecological considerations, booming has become an important means of containing oil spills, even though more effective equipment is now available.

Following confinement of oil spills on water, various methods of removing the confined liquid have been used. One method is the use of absorbents, such as straw, plastics, sawdust, and peat moss. The absorbents are spread on the surface of the spill and then collected and burned on shore. Skimming devices operate on a different principle and must include pumps and separators. Power boats with skimmers on the bow scoop up the oil and water and send them through an oil separator and rollers to which only the oil adheres. The oil is then removed by scraping or compression.

HARMFUL EFFECTS OF POLLUTED WATERS.— Several basic biological, chemical, and physical processes affect the quality of water. Organic wastes (natural products, such as food, paper, and human waste) decompose by bacterial action. Bacteria attack wastes dumped into rivers and lakes, using up oxygen in the process. Fish and other aquatic life need oxygen. If the waste loads are so great that large amounts of oxygen are spent in their decomposition, certain types of fish can no longer live in that body of water. A pollution-resistant lower order of fish, such as carp, replaces the original fish population. The amount of oxygen in a body of water is therefore one of the best measures of its ecological health.

If all the oxygen is used, an anaerobic (without air) decomposition process is set in motion with a different mixture of bacteria. Rather than releasing carbon dioxide in the decomposition process, anaerobic decomposition releases methane or hydrogen sulfide. In these highly polluted situations, the river turns dark and odors-like rotten eggs-penetrate the environment.

Heated water discharged into lakes and rivers often harms aquatic life. Heat accelerates biological and chemical processes that reduce the ability of a body of water to retain dissolved oxygen and other dissolved gases. Increases in temperature often disrupt the reproduction cycles of fish. By hastening biological processes, heat accelerates the growth of aquatic plants such as algae. Finally, the temperature level determines the types of fish and other aquatic life that can live in any particular body of water. The effects of excessive heat operate to change the ecology of an area-sometimes drastically, rapidly, and irreversibly.

One of the most serious water pollution problems is eutrophication—the "dying of lakes." All lakes go through a natural cycle of eutrophication, but this normally takes thousands of years. Lakes are deep and have little biological life. Lake Superior is a good example. Over a period of time, nutrients and sediments were added and the lake became more biologically productive and shallower. As nutrients continued to be added, large algae blooms grew, the fish populations changed, and the lake began to take on undesirable characteristics. After an extended time, a lake can become a swamp and finally a land area.

People greatly accelerate this process of eutrophication when they add nutrients to the water. Nutrients include detergents, waste food products, fertilizers, and human wastes. The actions of people can, in decades, cause changes that would take nature thousands of years.

Polluted waters harm human health as well as the natural environment. It is true that epidemics of typhoid, dysentery, and salmonellosis borne by polluted water are no longer serious public health threats in the United States. However, it is still vital that we maintain adequate protection of the public from these and other pollution dangers. Often water must be treated to very high levels before it is drinkable. Frequently, beaches must be closed and shellfish left unharvested. Inadequately disinfected municipal waste overflow from combined sewer systems and runoff from animal feedlots often create high bacteria densities in local water supplies. Ships that are anchored far upstream can contribute to a high bacteria count in a community's water supply. The Navy is exploring the use of many devices and schemes to lessen the effect of waste discharges in water.

Ground Pollution

Construction site work and repair and maintenance of facilities have the immediate potential for becoming polluting activities. Since the majority of construction efforts take place on land, project supervisors must identify potential pollution hazards and take steps to minimize the effects. Some of the most common pollution activities that affect the ground areas and water ecosystems are grubbing and equipment repair operations.

GRUBBING OPERATIONS.— Large-scale clearing and grubbing during the initial stages of a project often produce damaging environmental effects, such as increased soil erosion, reduction of atmospheric oxygen, and destruction of wildlife habitat. Another primary concern is the introduction of particulate matter into streams and riverbeds. Particulate matter released into waterways causes increased siltation and algae growth.

To prevent these damaging effects you should save as much vegetation as possible-trees, grass, and other plants-to hold the soil in place. Consider allowing tree rows to be left in place until the project is completed. Replant cleared areas. Construct a shallow trench around the perimeter of a project to help contain water runoff into streams and rivers and to prevent siltation. The decision to burn scrubs and stumps should be based on atmospheric conditions. Burn only when conditions are favorable and the material to be burned is totally dry. **A burn permit is required in all burning operations on NCF projects!** To prevent wild tires and production of smog, do **NOT** use petroleum-base fuels to start fires! Petroleum-base fuels do not burn completely, and the residue seeps into the underground water table.

EQUIPMENT REPAIR OPERATIONS.— Repair and maintenance of CESE whether in the shop or on the project site must always be under controlled and closely monitored conditions. Lubricating oil, fuel, hydraulic fluids, transmission fluids, and antifreeze contain extremely volatile chemical properties. When these petrochemicals are mixed with certain solvents or acids, they produce deadly toxins that sometimes leak into the groundwater or into the human food chain. Some of these toxins remain reactive and hazardous for up to 100 years before they become nontoxic. When any of these materials are spilled onto the ground, it must be considered a major contaminating spill with dangerous aquifer polluting potential. Some of the larger CESE used by NCF contain enormous amounts of petrochemicals. A 25-ton hydraulic crane contains over 214 gallons of potential pollutants, and a twin-engine scraper contains over 350 gallons. Spillage or dumping of these amounts of contaminants can be disastrous!

Because of the varied conditions that affect migration and recovery of a spill, recovery systems must be tailored for each site. Some of these systems are covered in NAVFAC DM 5.14, *Groundwater Pollution Control.*

Small spills that encounter a shallow groundwater table or that are contained by a natural barrier, such as rock, stone, or impermeable clay, prevent vertical migration and can be recovered by using an interceptor trench, as shown in figure 7-1. This interceptor trench system is relatively simple and can be built by using materials and equipment normally available on a construction site. The trench must bisect the entire width of the spill to contain it; therefore, the interceptor system is useful only on spills that can be contained quickly. The trench depth usually is limited to 6 to 8 feet, because beyond that depth the ground becomes unstable. An impermeable barrier, such as rubber sheeting, should be installed on the downgrade side of the trench. This barrier prevents migration of the accumulated spill product and still allows water to pass beneath the barrier. Since most petroleum products float on water, the spill can be pumped out into a separator, as shown in figure 7-2. The separated spill can then be disposed of off-site at an authorized waste-handling facility.

Another method of clearing a spill area is to completely remove all contaminated soil from the site to a facility or landfill that is designed to receive such material. This is called stripping. Stripping must be done carefully so that the underlying and adjacent soil is not contaminated by the removal process. Once all of the contaminants are removed from the site, the excavation may then be backfilled with dry, clean soil.

The best method, of course, is to be sure that spills do not occur on jobsites.

AIR POLLUTION

As a first class petty officer, you should be aware of work conditions that cause air pollution and of the efforts required to minimize or correct the problem.

When incomplete combustion occurs in base boilers, space heaters, and stoves, the unburned hydrocarbons and various other fuel components combine chemically to form by-products. Many of these by-products are harmful to people and the environment.

The by-products that have the most adverse effect on the air are carbon monoxide, particulate matter, sulfur oxides, unburned hydrccarbons, nitrogen oxides, and lead. The most effective means of controlling air pollution from incomplete fuel combustion is to properly and frequently maintain the equipment. In this way, the equipment is operating at an optimal fuel and oxygen mixture. Another means of lessening air pollution, not always under your control, is the use of only the best grade of fuel. High-grade fuel contains low particulate matter, low water and sulfur content, and few contaminants.

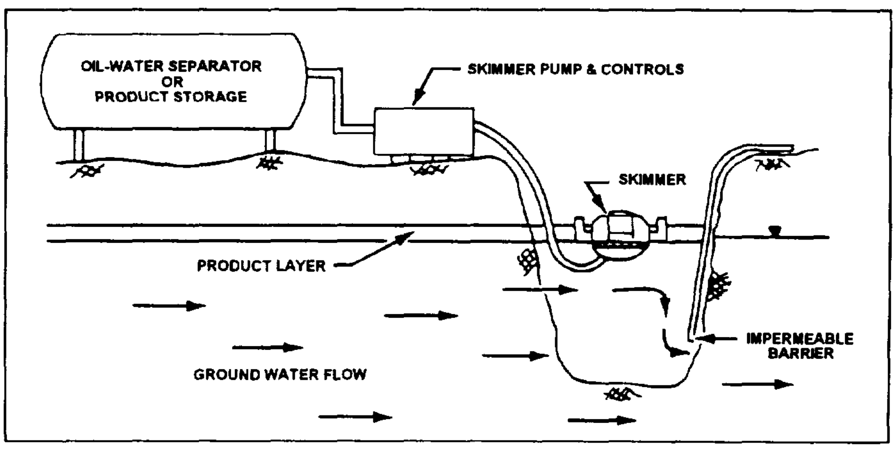

Figure 7-1.—Interceptor trench with skimmer pump.

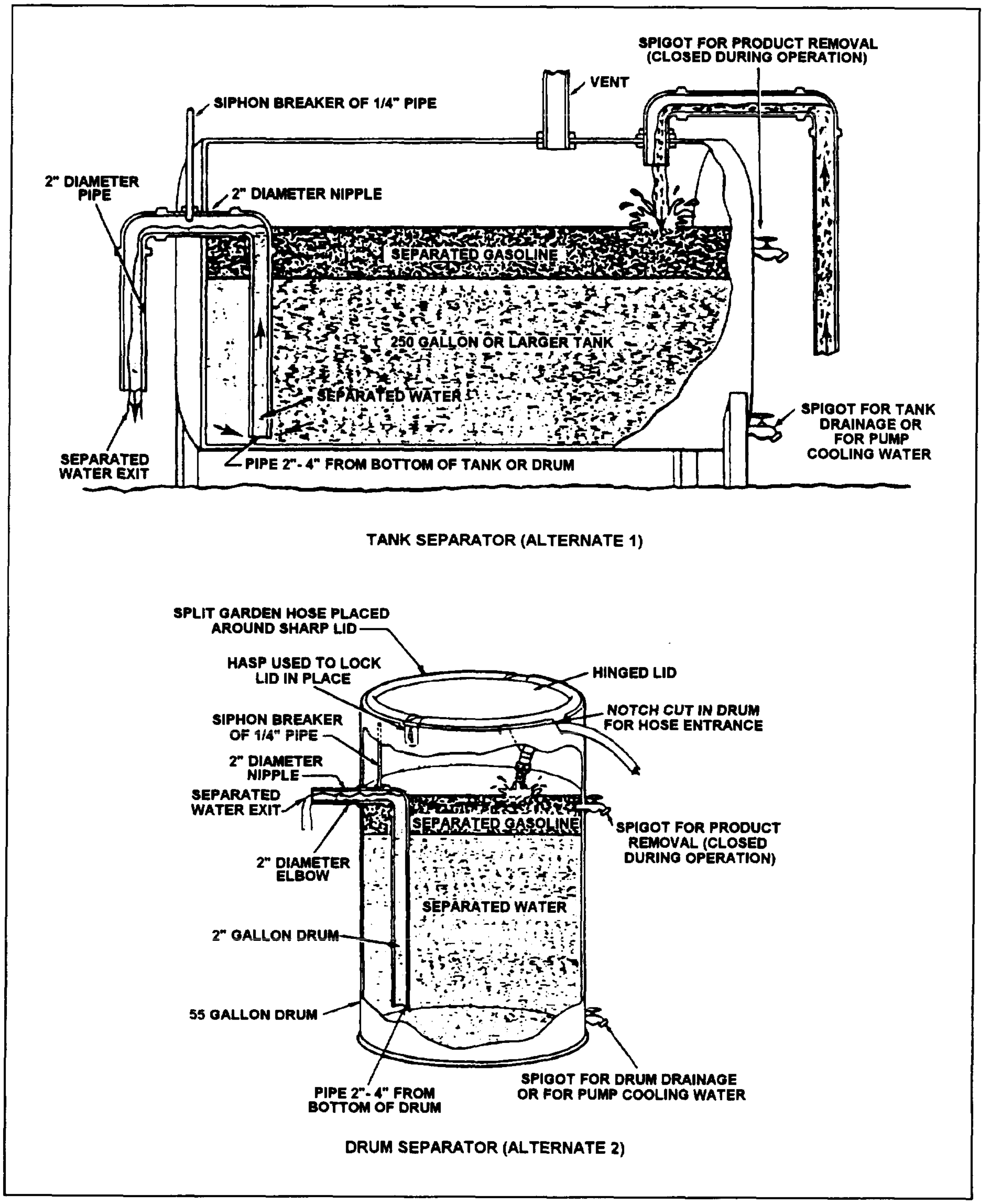

Figure 7-2.—Water-in-oil separators.

Asbestos

Another air pollutant that you must be knowledgeable of and concerned with is asbestos dust. Asbestos dust occurs in the installation, maintenance, and removal of asbestos material from a construction site.

Asbestos is a fibrous mineral that can be woven like wool. Through a variety of processes, asbestos can be turned into thousands of construction products, These products were used extensively from the 1930s through the 1960s. Asbestos has been used by mankind for over 2500 years. However, it was not until the early 1800s that asbestos was found to be a health hazard. In the 1900s, only miners and workers in industrial manufacturing plants were believed to be affected by asbestos. As research continued into the 1900s, asbestos was discovered to be the main cause of asbestosis, a generic term for a wide range of asbestos-related disorders and mesothelioma. Mesothelioma, at one time, was a rare form of lung cancer. It is presently occurring much more frequently among people exposed to asbestos dust particles.

There are three terms associated with asbestos dust particle length that you need to know. These terms are *nicron, nanometer,* and *angstrom*. To give you an idea of their size, in 1 meter, there are 1 million microns, 1 billion nanometers, and 10 billion angstroms.

It was not until the advent of the transmission electron microscope and the scanning electron microscope in the latter part of the 1950s that the true size (200 to 250 angstroms) of an asbestos particle was discovered. Within this size range, air that appears to be dust-free can contain millions of disease-producing asbestos particles. These minuscule asbestos particles have led to many laws, regulations, and cleanup problems. Although these particles cannot be seen, they can remain suspended in the air for months. In working to solve this problem, you must take air samples to ascertain the severity of the situation. To remove these particles, the air must be scrubbed with a special air filtration machine.

The Navy's guidance for asbestos use, demolition, and disposal is covered by the *Navy Occupational Safety and Health (NAVOSH) Program Manual,* 0PNAVINST 5100.23 series. However, you should also learn the local laws and restrictions pertinent to the area in which you work. These federal, state, and local laws or ordinances are extremely important. In an overseas location, you need to research and clearly understand the pollution laws of the host country. It is inevitable that somewhere in the disposal cycle, transporting of this type of material to a disposal site will take place over roads not directly under Navy control.

In all cases, you must constantly research the laws governing asbestos. If you are continually involved with asbestos, you need to stay informed of current regulations and laws. Asbestos laws are constantly changing and being updated. At the present time, legislation is proposed to outlaw all forms and uses of asbestos.

Pesticides

There are also numerous chemicals and pesticides that release harmful and deadly fumes into the air. It is important for you to become familiar with all the materials used by shop personnel within your jurisdiction. Normally, toxic substances have warning labels affixed to them. Once the chemicals being used are identified, you can obtain supplemental information from the unit environmental protection office or from the local safety office.

POLYCHLORINATED BIPHENYLS (PCBs)

There are other hazardous substance classes of chemicals that you, as a first class petty officer, must be aware of. These chemicals, polychlorinated biphenyls, better known as PCBs, are a group of toxic chemicals belonging to the chlorinated hydrocarbon family.

PCBs have been used extensively as insulators and coolers in electrical equipment. PCBs have been used primarily in electrical transformers, especially in and around buildings where the danger of fire exists. PCBs have also been used in capacitors, fluorescent light ballasts, electrical appliances, and motors.

PCBs can cause irritation to the eyes, skin, and lungs. PCBs also are suspected of being a cause of cancer. To date, there is still not enough evidence to prove PCBs cause cancer in humans. PCBs accumulate in the environment; more specifically, they accumulate in human fat tissue. PCBs are stable and slow to break down.

Naturally after reading this information, you are asking yourself, how do I recognize containers or equipment that may contain PCBs? To begin with, PCBs were manufactured and used in a variety of electrical and mechanical applications from the early 1930s until regulated by the Toxic Substances Control Act in 1977. They continue to be used today, but only in enclosed systems.

If you are designated as a project supervisor or petty officer in charge (POIC) of a project, you must be aware of items that contain PCBs if these items are to be serviced, modified, or removed from service. If such items exist, you must stop site work secure the site, and notify the activity environmental coordinator and the EPA branch or division. For further information on the PCB program, consult the *PCB Program Management Guide,* NEESA 20.2-028B.

HAZARDOUS MATERIAL CONTROL

The hazardous material control program is a Navywide program to enforce the correct storage, handling, usage, and disposition of hazardous material. Hazardous waste disposal is a serious concern in today's Naval Construction Force. Cleaners, acids, mastics, sealers, and ever-paints are just a few of the hazardous materials that may be present in your shop or on your project site. As screw leader, you are responsible for the safety and protection of your crew. You are equally responsible for the protection of the environment. There are stiff fines and penalties that apply to NCF work as well as civilian work for not protecting the environment! You are not expected to be an expert in this area. You should, however, immediately contact the environmental representative or the safety office in case of any environmental problem (spill, permits, planning, and such).

PROPERTIES OF HAZARDOUS WASTE

Few discarded materials are so compatible with the environment or so inert as to have no short-or long-term impact. Hazards that appear minor may have unexpected impacts long after disposal. When two or more hazards pertain to a material, the lesser may not receive the necessary consideration. Mixing of two discarded substances may result in a chemical reaction with severe and unexpected consequences.

Since waste is generally a mixture of many components, its physical and chemical properties cannot be defined with any degree of accuracy. Whenever possible, the approximate composition of a hazardous waste should be ascertained from the originating source or from the manifest accompanying the waste being transported. Generally, when one component predominates, the physical and chemical properties of the waste mixture are nearly those of the major component. This is not true for the hazardous properties of waste mixtures consisting of a relatively harmless major component and small amounts of highly toxic, radioactive, or etiologically (disease producing) active components. The hazard, in this case, is determined by the smaller component.

The EPA defines hazardous solid waste as any material that has the potential to do the following:

1. Cause, or significantly contribute to, an increase in mortality or any serious, irreversible, or incapacitating reversible illness.

2. Pose a substantial hazard to human health or the environment when the hazardous material is improperly stored, treated, transported, or disposed of.

By EPA standards, the determining factor for a material to be classified as hazardous waste is that it must meet one or more of the conditions of ignitability, corrosivity, reactivity, or toxicity.

- Ignitability:

It is a liquid, other than an aqueous solution, containing less than 24 percent alcohol by volume and has a closed-cup flash point of less than 60°C (140°F).

It is not a liquid and is capable under standard temperature and pressure of causing fire through friction, absorption of moisture, or spontaneous chemical changes and, when ignited, burns so vigorously and persistently that it creates a hazard.

It is an ignitable, flammable compressed gas, which is defined as a gas that forms a flammable mixture when mixed with air at a concentration less than 13 percent (by volume) or has a flammability range with air that is greater than 12 percent, regardless of its lower flammable limit.

It is an oxidizer, such as a chlorate, permanganate, inorganic peroxide, nitrocarbo nitrate, or a nitrate that yields oxygen readily to stimulate the combustion of organic matter.

- Corrosivity:

It is an aqueous solution and has a pH less than or equal to 2 or greater than or equal to 12.5.

It is a liquid, and it corrodes steel at a rate greater than 6.35 mm (0.25 inch) per year at a test temperature of 55°C (130°F).

- Reactivity:

It is normally unstable and readily undergoes violent change without detonating.

It reacts violently with water.

It forms potentially explosive mixtures with water. When mixed with water, it generates toxic gases, vapors, or fumes in a quantity sufficient to present a danger to human health or to the environment.

It is a cyanide- or sulfide-bearing waste that, when exposed to pH conditions between 2 and 12.5, can generate toxic gases, vapors, or fumes in a quantity sufficient to present a danger to human health or to the environment.

It is capable of detonation or explosive reaction if it is subjected to a strong initiating source or if heated under confinement.

It is readily capable of detonation or explosive decomposition or reaction at standard temperature and pressure.

It is a known forbidden substance or a class A or B explosive.

- Toxicity:

It is a material that contains or degrades into toxic components in concentrations that pose a potential hazard to the environment or to the public health and that may be fatal to human in low doses.

HAZARDOUS WARNING MARKINGS AND LABELS

Specific hazards can be determined at a glance by referring to warning markings and labels that identify hazardous materials. Hazardous warning markings and labels are necessary to show clearly the hazardous nature of the contents of packages or containers at all stages of storage, handling, use, and disposal. When unit packages (marked packages that are part of a larger container) are removed from shipping containers, the continuity of the specific hazard warning must be preserved. This is normally done by applying the appropriate identifying hazardous label to the hazardous material container or package.

The Department of Transportation (DOT) labeling system, shown in figure 7-3, is a diamond-shaped symbol segmented into four parts. The upper three parts reflect hazards relative to health, fire, and reactivity. The lower part reflects the specific hazard that is peculiar to the material.

The four specific hazards that the labels are designed to illustrate areas follows:

Health Hazard - the ability of a material to either directly or indirectly cause temporary or permanent injury or incapacitation.

Fire Hazard - the ability of the material to burn when exposed to a heat source.

Reactivity Hazard - the ability of a material to release energy when in contact with water. This term can be defined as the tendency of a material, when in its pure state or as a commercially produced product, to vigorously polymerize, decompose, condense, or

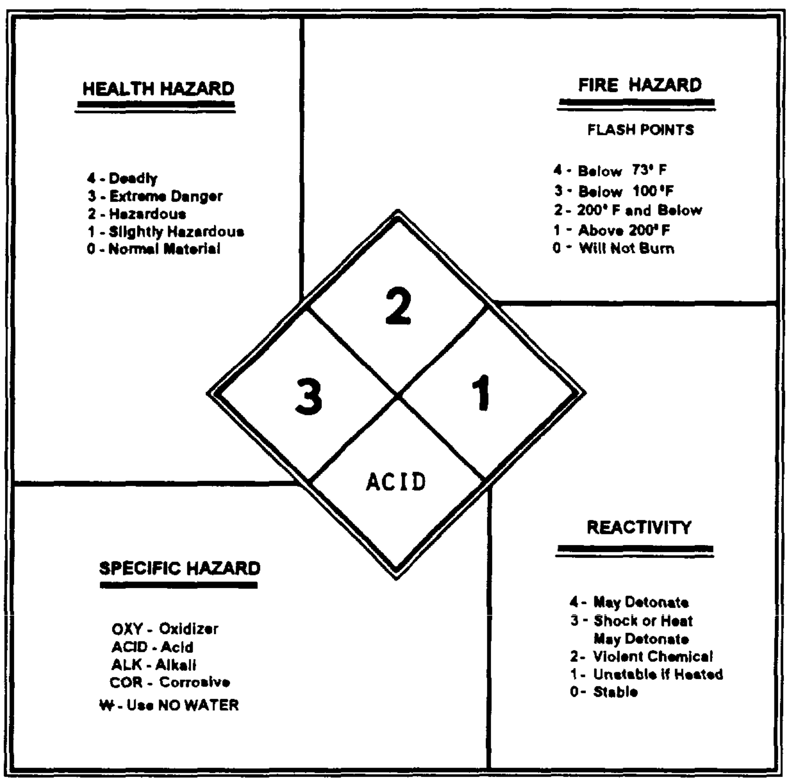

Figure 7-3.—Hazardous code chart.

otherwise become self-reactive and undergo violent chemical changes.

Specific Hazard - this term relates to a special hazard concerning the particular product or chemical, which was not covered by other labeled hazard items.

The degree of hazard is expressed by a numerical code:

4 = extremely dangerous material

3 = dangerous hazard

2 = moderate hazard

1 = slight hazard

0 = no hazard

The example, shown in figure 7-4, describes the hazards of methyl ethyl ketone. Methyl ethyl ketone is usually found mixed with paints, oils, and greases from solvent cleaning, paint removers, adhesives, and cleaning fluid residues. The numbers on the label identify this chemical compound as follows:

Health Hazard 2, "Hazardous"

Fire Hazard 4, "Flash point below 73°F, extremely dangerous material"

Reactivity 3, "Shock or heat may detonate, dangerous material"

Specific Hazard, "None"

Other specific labeling requirements are provided in the NAVSUPINST 5100.27 series. All supervisors should carefully review the contents of this instruction.

MATERIAL SAFETY DATA SHEETS

A Material Safety Data Sheet (MSDS), OSHA Form 174, or an equivalent form containing the identical data elements, must be used by manufacturers of chemical products. This form communicates to users the chemical, physical, and hazardous properties of the product. Manufacturers must use MSDS forms to comply with the OSHA Hazard Communication Standard, 29 CFR 1910.1200. The completed form identifies key information on the product: name, address, and emergency contact of the manufacturer. The form also contains the identity of hazardous ingredients, physical/chemical characteristics, fire and explosion hazard data, reactivity data, and health hazard data. The form also lists the precautions for safe handling and use, and control measures. **Notice that OSHA Form 20 or DD-1813 forms are considered obsolete and should not be used for supplying MSDS information.** All data submitted must comply with the provisions of FED-STD 313C.

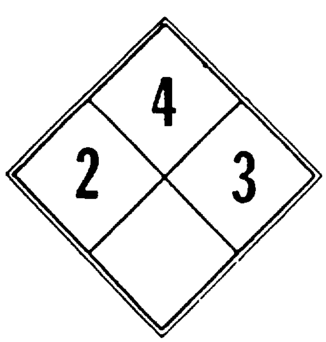

Figure 7-4.—Hazard warning label for menthyl ethyl ketone.

Upon drawing any hazardous material, MLO provides the crew leader with an MSDS. The MSDS identifies any hazards associated with exposure to that specific material. It also will identify any personnel protective equipment or other safety precautions required as well as first aid or medical treatment required for exposure. The crew leader is required by federal law to inform crew members of the risks and all safety precautions associated with any hazardous material present in the shops or on the jobsite. This should be done during each daily safety lecture. Additionally, the MSDS must be posted conspicuously at the jobsite, shop spaces, and any other approved hazmat storage area.

HAZARDOUS MATERIAL STORAGE

The safest practice concerning hazardous material is to draw **only the amount of material than can be used that day.** Storing hazardous materials on the jobsite requires the use of approved storage containers. These containers must be placed a minimum of 50 feet away from any ignition device or source. Plan for the delivery of proper storage equipment before having hazardous materials delivered to the jobsite. Since many hazardous materials require separate storage containers (for example, corrosives and flammable cannot be stored together), consult with the battalion safety office.

HAZARDOUS MATERIAL TURN-IN

Any excess material must be disposed of through an authorized hazardous material disposal facility. Proper labeling of hazardous materials is critical. Properly labeled, waste can be disposed of for a relatively low price. Unidentified, it must first be analyzed, which is extremely expensive.

Avoid mixing unlike types of waste. Do no mix waste paint timer in a waste oil drum. The Navy sells uncontaminated waste oil for a profit. If only minor amounts of any other substance are present in the waste oil, the Navy must pay high prices for analysis and disposal. The best method for disposal is properly labeling the materials and returning them, unmixed to the supply department. Each container must be clearly labeled, preferably with the BM line item or other supply tracking documentation. It is always best to check with the battalion MLO staff or safety office for proper disposal procedures.

This chapter does not attempt to tell all you need to know about environmental pollution. For specific information, refer to the following manuals or instructions:

- *Domestic Wastewater Control,* MIL-HDBK 1005/8
- *Environment and Natural Resources Projection Manuals,* OPNAVINST 5090.1 series and 5090.2 series
- *Groundwater Pollution Control,* DM 5.14
- *Hazardous Waste Storage Facilities,* MIL-HDBK 1005/13
- *Industrial and Oily Wastewater Control,* MIL-HDBK 1005/9
- *NCF Occupational Safety and Health Program Manual,* COM2NDNCB/COM3RDNCBINST 5100.1 series